

EPA Comments on Draft Stormwater and Riverbank Assessment and Sampling Plan, Revision 4 Swan Island Basin Project Area Dated September 27, 2021

Comments dated October 22, 2021

The following are the U.S. Environmental Protection Agency's (EPA's) comments on the Draft Stormwater and Riverbank Assessment and Sampling Plan, Revision 4 (SRASP), prepared by HydroGeoLogic, Inc. (HGL) on behalf of the Swan Island Basin Remedial Design Group (SIB RD Group) and dated September 27, 2021. The SRASP is a deliverable prepared for the SIB RD Group under the Administrative Settlement Agreement and Order on Consent, CERCLA Docket No. 10-2021-001, executed between EPA and SIB RD Group.

General Comments on SRASP:

1. **Traffic Control:** A traffic control plan should be included in the SRASP or as an attachment to the health and safety plan (HASP) in the SIB RD Group's Pre-Design Investigation (PDI) Work Plan. Reconnaissance of proposed stormwater sampling locations during the September 22, 2021 site visit revealed that some of the proposed sample locations are at manholes that are located within streets with vehicle traffic. These locations will require traffic control to allow for safe sampling, and procedures for traffic control that are consistent with local requirements should be provided for EPA review prior to sampling in the SRASP or HASP attachment.

Specific Comments on SRASP:

1. **Section 1.2 Purpose and Objectives, page 1-2:** Revise the text to state that sediment management areas (SMAs) are defined by the horizontal and vertical extent of contamination exceeding Portland Harbor Superfund Site (PHSS) Record of Decision (ROD) Table 21 remedial action levels (RALs) and/or principal threat waste (PTW) thresholds.
2. **Section 2.1 Stormwater Discharge, page 2-1:** Revise the text to clarify that source control authority has been transferred to EPA for select sites, including the U.S. Coast Guard Facility and the US Navy and Marine Reserve Center.
3. **Section 2.2 Riverbank Conditions, page 2-2:** EPA has the following comments on this section and the text should be revised accordingly:
 - a. The opening paragraph and subsequent bullets discuss three riverbank locations that were identified in the Portland Harbor Superfund Site (PHSS) Record of Decision (ROD) as containing known contamination. Figure 3-2 identifies additional riverbanks that are known to exceed cleanup levels (CULs) based on previous investigations. EPA requests that future deliverables describe locations and extents of contaminated riverbanks, including ROD-identified and non-ROD-identified riverbanks.
 - b. Revise the text in the final paragraph of the section and elsewhere in the report as needed to clarify that, per ROD Section 14.2.9.5, "contaminated riverbanks will be remediated through this cleanup where they are contiguous with in-river contamination or where they pose a risk of recontamination to the Selected Remedy" (EPA 2017).

- c. Revise the text to reflect that RD should include consideration of active cleanup measures (e.g., excavation, capping) for contaminated riverbanks, as required by the ROD and RDGC Appendix D. The text appears to suggest that the riverbank remediation will consist of only stabilization measures.
- 4. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-1:** Section 3.1 indicates that in-line sediment trap samples will be composited into two separate sampling periods: the wet season from November through March, and the dry season from July through October. However, Section 4.1.5 states that in-line sediment trap sample bottles will be removed and replaced at the end of January, April, and June for compositing and analysis representing wet season accumulation, and that bottles will be deployed in June until October to represent dry weather accumulation. The SRASP should clarify the sampling period that are planned and indicate whether they correspond with wet or dry periods. Also indicate whether the dry-weather sampling period may be terminated early, in the event of predicted wet weather prior to the end of October that is common in Portland.
- 5. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-1:** This section indicates that no stormwater or stormwater solids sample collection is planned for outfalls that have historically discharged to the project area from the Portland Shipyard because those stormwater discharges are being rerouted for treatment prior to discharge. The updated stormwater conveyance system at the Portland Shipyard is designed to overflow to the project area during storm events in excess of the 2-year 24-hour storm. The SIB RD Group should consider whether stormwater overflows from the Portland Shipyard during precipitation events that exceed the design storm (2-year 24-hour) should be evaluated in the SEDCAM modeling described in the Sufficiency Assessment Report (SAR).
- 6. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, bullet 1, page 3-1:** The timing and representativeness of stormwater solids data that are referenced in this bullet should be clarified. Some of the stormwater solids data presented in the SAR were collected before source control measures (SCMs) were implemented in the outfall basins and are no longer representative of current conditions. This fact is acknowledged in the second bullet in Section 3.1, but the first bullet should clarify whether the referenced concentrations represent post-SCM conditions.
- 7. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, bullet 2, page 3-1:** Clarify the intent of establishing “baseline” conditions. Typically, “baseline” conditions are established for future comparisons to evaluate changes from baseline. Based on the data objectives described in Section 3.0, it seems the intent of these data is to evaluate potential for recontamination of sediment and not to establish basis for comparison to future stormwater discharges.
- 8. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-1, and Table 3-1:** EPA has the following comments on this section and the text should be revised accordingly:
 - a. Clarify the statement that “Advance field reconnaissance will identify fallback HVS sampling locations if during a large storm event the proposed manholes are flooded to the point that the proposed sampling would be infeasible at those locations.” Comparisons of pipe invert elevations to river stage elevations should be completed before mobilizing to the field so that the sample locations and necessary preparations (e.g., traffic control, access notifications) are coordinated before arriving to the sampling location.
 - b. Based on the reported pipe invert elevation at Manhole AAQ003 of 0.99 feet Morrison Bridge Datum Correction (which EPA interprets as meaning the gage height reported on the USGS staff gage at the Morrison Bridge in the Willamette River), the SIB RD Group

should consider whether it is feasible to sample stormwater at that location or if another location should be identified as the primary sampling location. Observations of historical data from the USGS gaging station at Morrison Bridge (Monitoring location 14211720) suggest that gage heights rarely drop below 1 foot, and wet season gage heights are commonly in the 4- to 10-foot range.

9. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, footnote 2, page 3-2:** The HVS sampling methodology using the Gravity Marine PR2900 system is a time-weighted sampling method and not flow-weighted sampling. Revise the text accordingly.
10. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-3:** Clarify how data from manual solids grab sampling and sediment trap sampling will be used in the SEDCAM model compared to representative end-of-pipe direct discharge. Appendix A of the draft SAR describes the SEDCAM modeling approach but does not specifically describe the use of stormwater solids data. Section 4.1 of Appendix A in the draft SAR describes that stormwater concentrations and total suspended solids concentrations will be inputs that will be used to estimate contaminant concentrations in suspended sediment that is discharged from the outfalls but does not describe how stormwater solids data will be incorporated into the evaluation. This data use should be clarified in the SRASP and the revised SAR.
11. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-3:** EPA has the following comments on stormwater and stormwater solids data objectives in this section and the text should be revised accordingly:
 - a. Revise the text to clarify why stormwater solids sampling in pipe laterals is not proposed for the M-3 drainage basin.
 - b. Revise the text to clarify why in-line sediment traps and/or manual solids grabs are not proposed for manhole AAM107 which is identified for high-volume, (HVS) time-weighted sampling.
12. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-3:** EPA understands that sampling locations at the seven private facilities listed will be selected after site inspections are performed and expects that the list of selected outfalls be provided to EPA before sampling at the private facilities. Once selected, provide an addendum to the SRASP with information on the selected outfall basins or sampling locations (e.g., end-of-pipe or in manholes) for any of the private facilities. The rationale for the selected outfalls should consider the size of the area that drains from the outfall, the land use within the outfall basin, previous stormwater data from the outfall (if any), sediment concentrations adjacent to the outfall, and whether the selected outfall basin can be used to represent contaminant concentrations in stormwater from other outfalls at the facility.
13. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-4:** Revise the text to clarify why source control tracing was proposed for manhole AAQ011 as part of the PDI. The manual solids grab sample from AAQ011 is the only sample included within the scope of work that has been identified for “source tracing.” No other up-gradient sampling for source tracing is proposed elsewhere in the M-3 drainage basin, which is large and includes several branches, or from any other City drainage basin. It is unclear how source tracing in this one location, rather than locations further downgradient, addresses data objectives applicable to the in-water project. If a manual solids grab sample is to be collected from AAQ011, in-line sediment trap samples should also be collected at AAQ011 consistent with the sampling approach at AAM104, AAM169, AAQ003, AAP957, and AAM131.

14. **Section 3.2 Riverbank Characterization, page 3-5:** The text states that, “Riverbank soil sampling will be deferred until the SMAs have been refined and the delineation of erodible riverbank areas has been completed.” Note that the requirement to perform chemical characterization of riverbank soils is not limited to areas adjacent to SMAs and/or erodible soils. Per RDGC Appendix D Section 2.2.2, it is expected that the entire lateral extent of the riverbank will be characterized for ROD Table 17 and Table 21 contaminants. Revise the text to be consistent with RDGC Appendix D.
15. **Section 3.2 Riverbank Characterization, No. 2, page 3-5:** The text states that data for the BANCS analysis will be collected in, “**up to 150** transect locations” (**emphasis added**). Clarify what conditions would preclude data collection at the 150 transects identified on Figure 3-2.
16. **Section 3.2 Riverbank Characterization, bulleted list, page 3-6:** Revise the text to include a discussion of situations where a contaminant that is not included in ROD Table 21 exceeds a ROD Table 17 riverbank soil CUL (EPA 2017). When the ROD CULs are exceeded, EPA recommends a lines of evidence approach to evaluate whether the RAO can be achieved by the planned action.
17. **Section 4.1.1 HVS Stormwater Sampling Methodology for City Outfall Basins, pages 4-2 and 4-3:** EPA has the following comments on the section and the text should be revised accordingly:
 - a. The Greyline Stingray 2.0 measures water level and velocity, and flow and volume are calculated using measured or assumed cross-sectional geometry of flow. Revise the text to specify how flow geometry will be determined and used to calculate flow and volume.
 - b. Clarify how the Grayline Stingray 2.0 sensor will be used to collect a flow-weighted sample or revise the text to indicate that a time-weighted sample will be collected. The text on page 4-3 and the SOP for HVS both indicate that water will be pumped at a constant flow rate of approximately 1.5 liters per minute, which results in a time-weighted and not a flow-weighted sample.
 - c. If a submersible pump and intermediate carboy are used for sample collection, the pumping rate of the submersible pump should match the combined pumping rate of the HVS peristaltic pump and the whole water sample pump. Excess water should not be allowed to overflow in the intermediate carboy since this could result in accumulation of solids at the bottom of the carboy which would bias the sample results.
 - d. Clarify the approach for sample analysis of the whole water sample. The text in the final paragraph on page 4-3 indicates that solids will be centrifuged and analyzed for some ROD COCs and that stormwater will also be sampled for ROD COCs. Analysis of stormwater should include the whole water sample, and not the supernatant after the centrifuge process.
18. **Section 4.1.2.1.3 Particulate Phase Concentration, page 4-5:** Revise the units for the results of the calculation presented in Section 4.1.2.1.3. The resulting units of the calculation presented should be picograms per milligram (pg/mg) and not micrograms per liter (as indicated on the right side of the equation) or pg to proton masses (as indicated in the fourth bullet point below the calculation). The discussion of proton masses in the fourth bullet is unclear and does not appear relevant to the equation that is presented.
19. **Section 4.1.3 Automatic Stormwater Sampling Methodology for Private Outfalls, page 4-6:**
 - a. Describe how autosamplers will be installed and programmed to collect samples. This description should identify whether the sample will be a grab sample, flow-weighted composite sample, or time-weighted composite sample, what will trigger sample collection

(e.g., flow volume, flow duration), the volume of sample that will be collected, methods of flow measurement, and how the autosamplers will be monitored during the storm event.

- b. The timing of sample collection should be consistent with JCSC guidance. Specifically, samples should be collected within 3 hours of the onset of discharge, and a minimum of half of the samples should be collected during the first flush (defined in the JSCS as the first 30 minutes after the onset of discharge). Revise the text accordingly.

20. **Section 4.1.4 Manual Grab Stormwater Solids Sampling Methodology, page 4-6:** The third paragraph states that “Standing water in the manhole sump, if present, may be pumped off to simplify solids sample collection.” This sentence should read “Standing water in the manhole sump, if present, will be pumped off to ensure collection of a representative sample for stormwater solids.”

21. **Section 4.1.5 In-Line Sediment Trap and Flow Meter Installation and Sampling Methodology, page 4-7:** Describe whether sediment traps will be deployed in locations that are impacted by backflow during high river stage and how sediment trap data will be evaluated if/when backflow occurs where the sediment traps are deployed.

22. **Section 4.2. Riverbank Field Characterization – Phase 1 Assessment, page 4-9:** EPA has the following comments on this section and the text should be revised accordingly:

- a. The riverbank assessment should include data collection for all parameters required to perform the Bank Assessment for Non-Point Source Consequences of Sediment (BANCS) analysis, or equivalent, as outlined in the RDGC Appendix D. As written, the list of parameters is missing the bankfull height and vegetation root density from the bulleted list of proposed survey items on SRASP page 4-9.
- b. The riverbank assessment survey should also include a qualitative assessment of the potential for wind- and boat-induced wave action to contribute to erosion.

23. **Table 2-1 Summary of Data Gaps and Proposed Data Collection and Table 3-1 Summary of Stormwater System Sampling Activities Locations:** EPA has the following comments on Tables 2-1 and 3-1 and the SRASP should be revised accordingly:

- a. Revise Table 3-1 to identify the number of in-line sediment traps and stormwater solids grab samples that will be collected at each manhole location.
- b. Revise Table 3-1 to provide the number of sampling events for each location and sample type. It could be helpful to create two separate sections for sample type, one for stormwater and one for stormwater solids.
- c. Manhole AAM170 is identified as the preferred alternative sample location for HVS sampling in the M-2 drainage basin in the event that AAM169 is not available. AAM170 represents only one of three branches of the City drainage basin leading to outfall M-2, and alone may not be representative of discharges from the entire basin. The SIB RD Group should identify data limitations if AAM169 is unavailable for sampling and consider whether stormwater samples should be collected from each of the three sub-basin branches that contribute to M-2 discharge.
- d. Revise the table to list autosamplers as the stormwater sampling method for the private conveyance locations.

- e. WR-16 is identified in Table 3-1 as a location for stormwater grab and manual solid grab sampling while WR-15 is not; however, WR-15 is identified in Figure 3-1 for stormwater grab and manual solid grab sampling while WR-16 is not. Revise Table 3-1 or Figure 3-1 for consistency.
 - f. Revise the notes at the bottom of Table 3-1 to define what the Morrison Bridge Datum correction is and how it is calculated using the USGS gaging station 14211720 gage height of 1.55 feet above National Geodetic Vertical Datum of 1929.
24. **Table 4-1 Summary of Sample Activities, Numbers, and Analyses:** Revise the table to distinguish between the number of stormwater and stormwater solids grab samples collected from private stormwater conveyance systems.
25. **Appendix A, SOP A-5 (Gravity Marine SOP SW-27), High-Volume Storm Water Sampling for Analysis of Compounds with Low Detection Limits:** Revise the SOP to include the potential use of the submersible pump and intermediate carboy that is described in Section 4.1. The SOP should specify pump types (e.g., allowable construction materials and no filter screen), how to manage flow rate so there is no overflow in the intermediate carboy, how the pump intake will be deployed in the water column, and pump and carboy decontamination procedures.
26. **Appendix A, SOP SW-31, Sediment Trap Installations and Removals:** SOP SW-31 should be removed from the SRASP because it is for sediment traps that are deployed in the river and is not applicable to in-pipe stormwater applications.

Editorial Comments on SRASP:

1. **Section 2.2 Riverbank Conditions, bullet 1, page 2-2:** Correct the DEQ ECSI site number reference in the first bullet. DEQ ECSI site 277 is a different site that is north of the University of Portland; it is not the referenced riverbanks adjacent to the SIB Project Area.
2. **Section 2.2 Riverbank Conditions, page 2-2:** Rephrase the first sentence of the last paragraph to read more clearly. The meaning of the part that reads "...with an active remedy component that are part of RD" is particularly unclear.
3. **Section 3.1 Stormwater Outfall and Conveyance System Sampling, page 3-2:** Specify the media type (i.e., solids or stormwater) for the manual grab samples that are described in the last paragraph on page 3-2. It is evident based on the text on page 3-3 that the text is referring to stormwater solids, but that should be clarified up front.
4. **Section 4.1 Stormwater and Stormwater Solids Sampling, page 4-1, Section 4.1.2.1 Particulate Phase pages 4-4 and 4-5, Section 4.1.3 Automatic Stormwater Sampling Methodology for Private Outfalls, page 4-6:** Replace "RPCs" with "ROD Table 17 contaminants" in the sections identified and elsewhere in the report, as needed.
5. **Section 4.1 Stormwater and Stormwater Solids Sampling, page 4-2:** Teledyne ISCO is the company name, and "ISCO" is not an acronym for "In Situ Chemical Oxidation." Revise the text accordingly.
6. **SOP A-4, Storm Drain Sampling and SOP A-6, In-Line Sediment Trap:** Remove references to FMC confined space entry standards and replace with HGL requirements for confined space entry.